

PRESENTATION OVERLAY-PANEL DESIGN WITH THIS NUMBER.

Hobbies

• A Weekly Journal.

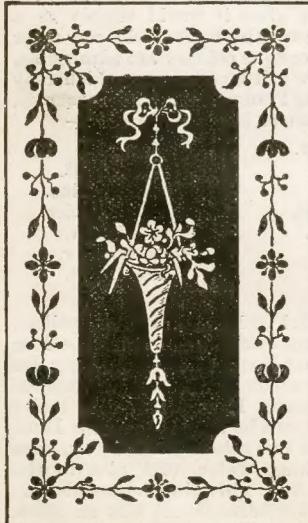
For Amateurs of Both Sexes.

No. 17. VOL. I.

FEBRUARY 8, 1896.

ONE PENNY.

"HOBBIES" DESIGN,
No. 17.



PANEL WITH
OVERLAY ORNAMENTS.

Stamp Collecting.

Wood Carving for Amateurs.

Lantern Slide Making.

Playgrounds of Electrical Science.

Stains for Fretwork.

Photographic Notes and Hints.

Prize Competitions.

Bees as a Profitable Hobby.

Cycling and Athletics.

Weekly Presentation Design.

Correspondence, Etc.



COLOURING PHOTOGRAPHIC LANTERN SLIDES.



SEVERAL correspondents have recently asked us to give an article upon colouring Photographic Lantern Slides, and here we propose to set forth a few simple instructions to that end. We have not a very keen sympathy for "Coloured Slides," and much prefer the Photographic transparency which, as we have before said, may in some instances be given a warm tone with advantage.

Amongst certain classes there is no doubt that the Coloured Slide still possesses a charm, and as it is quite within the possibilities of any one with ordinary ability to colour a Photographic transparency, we will, without further preface, proceed to describe the *modus operandi*.

In order to succeed the worker should have some knowledge of drawing, light and shade, and understand the use of colours. This knowledge should, of course, include the necessary combinations of colours to form different tints.

If our hobbyist is ignorant of the accepted rules that govern the laws of colouring, it will be well that he procure a handbook upon the subject, which will give him all he requires upon primary and secondary colours, mixing of colours, preparation of tints, the proper method of using the brush, &c., without which knowledge it would be folly to launch out upon the very intricate work of Colouring Lantern Slides. Such a book as we have mentioned can be obtained at any good artists' colourman's.

Having acquired the necessary information that governs the theory and practice of colouring, the first requirement of the artist will be a retouching desk; or an easel can be rigged up, and upon it placed a sheet of glass about the size of a school slate. Or, better still, remove the slate and glaze the frame; this with a very little ingenuity will make a capital retouching desk. It must be so set up that the angle at which it is used may easily be adjusted at the back of the desk. On the table level a sheet of white paper or cardboard should be placed, and the top light should be screened off.

We now need a palette, brushes, moist colours, tissue paper, a linen duster to clean the brushes upon, and a few bottles to hold the "medium."

The palette needs no description, and the brushes should be the very best and fine pointed, camel hair for general work, and sable for the more delicate filling in. It must be remembered that the colours are to be put upon very minute surfaces, and unless the greatest care is practised the Slide, when placed in the Lantern and projected on to the screen, and which is magnified many times, will have the appearance of a rough cart road. The colours for this particular work are moist, and specially prepared in metal tubes; these colours are what are known as "transparent." Mr. T. C. Hepworth, F.C.S., in his *Book of the Lantern*, thus explains the term:—To make this clear, let us suppose that anyone ignorant of the subject were to attempt to use such a colour as vermillion, which is opaque; it would appear to be of the usual vivid scarlet when seen on the glass, but seen through the glass it would simply be a black patch, because the light could not filter through it. No opaque colours are admissible, and we give below a list of colours which may be used for painting Photographic transparencies, and which are more or less transparent:—

Brown Madder.	McGillp.
Brown Pink.	Neutral Tint.
Burnt Sienna.	Prussian Blue.
Chinese Orange.	Purple Madder.
Crimson Lake.	Raw Sienna.
Indigo.	Rose Madder.
Italian Pink.	Yellow Lake.
Ivory Black.	

The most useful colours are blue, yellow, and possibly brown. Scarlet is a difficult colour to mix in order that it shall be transparent; for this purpose it is recommended to mix Chinese Orange with Crimson Lake. The only really brilliant blue that can be used is Prussian Blue. In landscape work this colour will be in constant requisition for skies, water, and also in the mixing of greens, &c. This blue is the only one that will give a flat transparent tint on glass.

We will now leave the colours and proceed to the question of "mediums," i.e., the material with which to mix the colours. Many are put forward as having special claims, but it is

difficult to surpass the special qualities of Canada balsam in turpentine. Another may be made—and one which is very popular amongst those who colour Slides—by diluting copal varnish with turpentine or japanner's gold size.

The colours are put upon the palette, and the selected medium is mixed with a painter's palette knife, and formed into the consistency of a coloured varnish. Colours thus mixed should be used quickly; if they thicken certain properties contained in the medium evaporate, and the colour loses its brightness and transparency.

It is next to impossible to buy a ready prepared transparent green; this colour is in great request for foliage, grass, &c., and as often it has to cover the densest parts of the Slide, it is most desirable that the colour should be as transparent as possible. Yellow and Blue should be mixed together for this purpose, and in accordance with the shade required so will the quantity of one or the other colour predominate. To take off the harshness of the Green obtained with Yellows and Blue, a little Brown or Red may be added when the two principal colours are being mixed.

When once good Greens, light or dark, are obtained, make a memorandum of the component colours, and always work to secure the shades so obtained. This is important, as in coloured Lantern Slides Green is usually the dominant colour, and varying shades and tones are soon discovered by the audience, and provoke criticism often the reverse of complimentary.

So far we have kept ourselves strictly to the preparation of colours, and in this chapter we shall not attempt to describe the application of them, but content ourselves with a few words of general advice.

Before commencing the colouring of a Slide be quite sure as to what tints you intend to use, and if possible study the scene, in nature, that the Slide depicts. For instance, if a cottage have a thatched roof, don't tint it slate colour or in imitation of tiles. If the walls in a field are of rubble stone, don't tint them the same shade of green as a hawthorn hedge. In tinting

the sky blue, should there be water in the foreground don't give it the same tint. In foliage remember that in the early spring the shades of green are very different in tint than to what they will be in the Autumn. In colouring a Slide which is a faithful reproduction of the harvest field, make a memorandum—in colour, if possible—of the beautiful Autumn tints, and try and imitate nature when colouring the Photographic transparency. With animals in a farm yard discriminate between a dun cow, a grey mare, and a bay pony.

In applying colour to the transparency be sparing at first. Wash in very faintly, remembering that it is much easier to add to than to take from. Don't make the contrasts too strong; aim at softness in all colours, and note that in nature, though colours are often in strong contrast, there is no harshness. In applying colour to the transparency see to it that the surface is evenly tinted, and that no colour is collected on the outer edge of the mass, as should this be done, the Slide in the Lantern will show a coarse black outline to the colour, and sadly spoil the effect.

Cleanliness is essential above all things. Be careful to have the surface of the Slide scrupulously clean and free from grease spots, finger marks, &c. The markings of thumb or finger on a Lantern Slide when projected has a really dreadful appearance, and must always be avoided.

Our next chapter will be on practical colouring and how to accomplish the painting of a Photographic transparency.

(To be continued.)



**V.R.
AIR
CUSHION
STAMPS.**

ILLUSTRATED CATALOGUE FREE.
Liberal Terms and Free Samples
for Agents.

H. LINDNER, 170, Fleet St.,
London, E.C.

MAGIC LANTERNS & SLIDES.

The best and cheapest house for the purchase (hire or exchange) of lanterns and slides. Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's new pattern helioscopic lantern is far superior to any other lantern at the same reasonable price. The demand has been so great that new machinery has been made for their production, and helioscopes can now be delivered on receipt of order. Walter Tyler, 48, Waterloo Road, London.

Oxygen and hydrogen of the very best quality, compressed, in thoroughly tested and annealed cylinders, at a much cheaper rate than any other firm can supply. Special low terms for large consumers. Walter Tyler, 48, Waterloo Road, London.

Selling off a large quantity of second-hand single binoculars and triple lanterns. Call and inspect immense stock. 50, Waterloo Road, London.

Hire department is perfect. Best quality slides lent on hire cheaper than any other house. Walter Tyler, 48, Waterloo Road, London.

Walter Tyler's new catalogue, upwards of 500 pages, fully illustrated, now ready, post free, 12 stamps; smaller catalogue, 6 stamps; and second-hand lists, post free. Walter Tyler, 48, Waterloo Road, London.



WALTER TYLER,

48 to 50, and 94, WATERLOO ROAD,
LONDON S.E.

WOOD CARVING FOR AMATEURS

CHAP. IX.—FRET CARVING.



FIGURE 23.

Fig. 23 illustrates the simplest possible example of this form of decoration. It is Elizabethan in style, and could be used for the base of a pilaster, or for some truss. The ornament has only two levels,—the surface and the ground. The outline is cut to a depth of one-eighth inch with a Chisel and Gouge (the Tools being held perpendicular),

and the background then roughed away and afterwards punched. It should be explained that this sketch is merely given as an illustration of the work, as the Carving is so simple that a beginner might almost adopt it for a first trial.

FIGURE 24.

Fig. 24 is a Chippendale fret, based on the same principle. The work, however, is more difficult to accomplish neatly; for the outline, Gouges of various curves are required, and all the corners at the centre must be finished off with great clearness. If the lines were carefully ruled beforehand, there

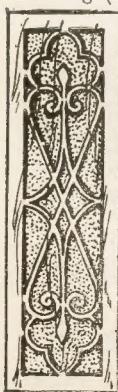


FIG. 24.

HIS branch of Carving may be divided into two classes, the first of which will be treated in this chapter, and which may be termed *Solid Fretcutting*. The phrase sounds self-contradictory, but it is sufficiently expressive for the purpose, and may be used for want of a better. The style of ornament has the same general effect as overlaying, and is extensively employed in Elizabethan and Dutch work.

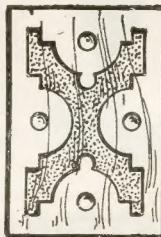


FIG. 23.



FIG. 25.

would be little cause for making an error. The ground might be punched, or left plain; the former process is decidedly more simple, but the latter seems less mechanical, and is better suited to the style. It is perfectly true that, in many articles of furniture, Chippendale frets are cut with the Scroll Saw, and merely overlaid in a smooth background; this is *fretwork*, however,—not Carving, and although the result may be effective, it is less artistic.

At the same time it cannot be complained that the intention of overlaying is to provide an imitation. The eye sees at a glance that there are two pieces of wood concerned, and that a saw-blade, and not a Carving Tool, has produced the pattern. There is no deception; overlay work was intended, and mere overlay work is given.

FIGURE 25.

Fig. 25 is pure Scotch, and many such examples will be found on old Oak Cabinets. The ornament is usually placed on the top of a

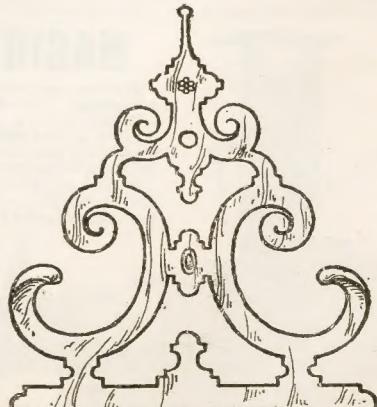


FIG. 26.

pilaster, which is otherwise decorated with carved or inlaid flutes. In modern reproductions it

must be admitted that these patterns are almost invariably cut with the fret saw, and afterwards applied. With furniture this no doubt saves a great amount of labour, as with Carving on the solid the whole pilaster would have to be ground down. Still the genuine solid work may be found, and this permits of the example being mentioned here.

FIGURE 26.

Fig. 26 is shewn as an open fret, as it is capable of being used in both ways. The ornament, of course, is Elizabethan, and whether fretted or carved would give little difficulty. It will be noticed that there is a small oval stud and a circular patera, which must be in relief. If these were carved on the solid, it would mean that the whole material would have to be cut away to a certain extent on their account. Naturally this would be most laborious work, and the result would little repay the great expenditure of time and trouble; it is only reasonable, therefore, to suggest that they should be carved separately, and then planted on. The turn



FIG. 27.

over at the end of each of the large curves is done by gently hollowing down the surface till the end appears to overlap; the back can then be slightly rounded. When executed in the solid, the outline must be clearly defined, and all trace of shreds or splints carefully removed.

FIGURE 27.

One of the best specimens of this method of Carving is seen in Fig. 27,—a panel from a modern French Walnut Cabinet. On the actual panel the Carving is very flat, being scarcely more than one-sixteenth of an inch in relief. The large centre oval and the four side ornaments are on the same level, and are but gently modelled. The strap-work overlapping is indicated to a degree merely noticeable, and no more. It can hardly be said that the great labour entailed in the preparation of such a piece of work is duly rewarded by the appearance. The Panel is on the side of a Cabinet, and hardly occupies a position of outstanding importance; the relief, moreover,

is so low, and the light and shade so delicate, that the natural effect of Carving is greatly lost. However, although an amateur might not be recommended to attempt any such intricate and unprofitable work, the illustration may be given as one of the best examples of its class obtainable.

In doing any Carving of this description, care must be taken to prevent undercutting. With natural foliage, and with some conventional treatments, undercutting is necessary to throw the ornament into full relief, but here is a mechanical—and partly geometrical—arrangement, where the formality of spirit has to be maintained, and where the Tools must consequently be held straight when cutting the outline. This advice not only applies to Fig. 27, but also to the previous illustrations.

The background must be worked with small and very sharp Tools, or a good surface will never be secured. The attempt should not be made to reduce the ground to a degree of perfect flatness and equality; this is a mistake which amateurs are sometimes apt to fall into, especially when frets are being carved. The background is really part of the design, and should be treated as such; it should never be regarded as a separate piece of wood. It is highly necessary to have the ground smoothed and levelled to a certain plane, but it should not convey the impression of being disunited from the ornament. If overlaying is not meant to imitate Carving, much less should Carving try to represent overlay work. The ambitious snipe is credited with the possession of a passionate craving to out-soar the eagle, but it has never been recorded that the king of birds was consumed with an overpowering desire to out-match any presumed superiority of his less elegant rival. Thus, Carving must maintain its reputation as the higher and more advanced Art, and should never wear the likeness of a more mechanical process.

The second branch of this subject, that of *Carved Fretwork*, will be dealt with in another chapter.

(To be continued.)

Terms of Subscription

	s. d.
Three Months (including postage)	1 8
Six Months Do.	3 9
Twelve Months Do.	6 6

All letters relating to subscriptions or back numbers should be addressed to the Publisher of *Hobbies*, Bouverie House, Salisbury Square, London, E.C.

TERMS FOR ADVERTISEMENTS.

	£ s. d.
Per Inch	0 10 6
One-Eighth Page	1 1 0
One-Quarter Page	2 2 0
Half-Page	3 15 0
Page	7 0 0

DISCOUNT ON A SERIES OF INSERTIONS

All Communications to be addressed to the Sole Advertisement Agents,

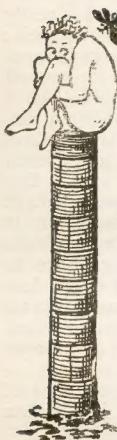
JOHN HADDON & CO.,
Bouverie House, Salisbury Square,
London, E.O.



BY C. N. WHITE,

First Class Certificated Expert of the British Bee-Keepers' Association.

CHAP. I.



In this country it is almost impossible to look upon bee-keeping except as a hobby, owing to the fact that we get our weather so much in "samples"; but although it is unwise to depend upon it for a livelihood, it may be considered a pleasant and intellectual means of spending spare hours. At the same time it is becoming a generally recognized fact that, if conducted on modern principles under favourable conditions, bee-culture will prove to be not the least profitable of the minor rural industries.

A man without a hobby is a creature to be pitied. Some incline to spend their leisure hours in one way, some in another; but there is no reason why in these times of general depression, hobbies should not only give that rest and change from ordinary work which is better for body and mind than mere idleness, but also prove a source of income. Among the hobbies that dwellers in the suburbs of large towns and in rural districts might turn to with this two-fold object is bee-keeping.

It has been stated that "Bees don't pay." On the contrary I assert, without fear of contradiction, that I know of no hobby or rural occupation as profitable as bee-keeping, when the outlay of time and money is taken into consideration. Those who say that bees do not pay would be too ready to say the same of other occupations in which they were engaged. I know no intelligent bee-keeper worthy of the name who would make such a statement.

In order to show what is possible under very favourable conditions, I may here give a few results obtained by bee-keepers of my acquaintance; but I wish it to be distinctly understood that these are the exceptions and not the rule. Still, what man has done man can do again, at any rate, in bee-keeping, if conditions are equally favourable; while if average returns per hive of only half the returns given here are obtained, they will be ample to prove the statement that bees *do* pay. No. 1, a bee-keeper

in Lincolnshire, who keeps only three hives, took an average of 109 lbs. of honey per hive in 1892; 156 in 1893; 188 in 1894; and 173 in 1895. No. 2, a resident near Ely, commenced with one stock which he bought fully equipped for 42/6. The first season he took about 70 lbs. of honey and made a profit of over 120 per cent.; last year he took 103½ lbs. The best return I personally ever had from one hive was in 1893, when I took from it, by extracting the honey from the combs, 132 lbs., 15 ounces, and a bee-keeper in the same village had a hive which gave him during the same season 135 lbs. The past year will long be remembered in many parts for the great successes recorded. Numerous instances are on record of over 100 lbs. per hive being obtained. Such results should be aimed at, and if they are not obtained, some of the conditions of success are evidently not fulfilled.

The value of a district to the honey-producer depends upon the extent of the crops of honey-producing flowers, such as white or alsike clover, sainfoin, mustard, turnip or similar crops grown for seed. Then only two things are wanted—bees and fine weather. The successful bee-keeper so manages his bees that they are very numerous at the commencement of the honey-flow—that period of the year when most flowers are in bloom at the same time—and then it is only unfavourable weather that will prevent the bees storing a very large amount of surplus. It has been calculated that a crop of white clover will yield 50 lbs. of honey per acre every day it is in bloom, and strong stocks standing near will gain in weight several lbs. a day.

The object of the succeeding articles under this heading will be to show how to manage the apiary with the greatest comfort as well as success.

Apart from the pecuniary side of the question bee-culture is to the student a most fascinating study, and one that in its mysteries will pay by an intellectual treat the study of such wonderful and useful insects. Then again, bees are indirectly of immense value to the fruit grower and seed producer, though scant acknowledgement has been made in the past of the important work they perform. Without bees our fruit and seed supply would indeed be extremely limited. Bees are as necessary to flowers as flowers are to bees.

Flowers are fertilized by wind and insect agency, and of insects none are of more valuable for this important purpose than our honey-bee.

The difference in returns from orchards before and after the establishment of apiaries in their midst has been most marked. Writing on this point in the *Entomologist*, Mr. H. Bassford, of Vaca Valley, California, said, after the introduction of sixty-five colonies of bees into the extensive cherry orchards found there,—“Our crop was good this season, and we attribute it to the bees. Since we have been keeping bees our crop has been much larger than formerly, while those nearest us, five miles away, where no bees are kept, produced light crops.” Mr. Darwin very carefully tested the matter, and with reference to the value of bees as fertilizers, says, “No bees, no seed; no seed, no increase of flower; the more visits from the bees the more seeds from the flower; the more seeds from the flower the more flowers from the seed.” He also gives the following result of an experiment he made. “Twenty heads of white clover, visited by the bees, produced 2,990 seeds; while twenty heads so protected that bees could not visit them produced not one seed.”

Bees are attracted to the flowers by their brilliant colours, and also—and doubtless much more powerfully—by the perfume they give off. We can detect the presence of a clover or a bean field long before we reach it by the scent borne upon the breeze, and we may fairly conclude that these busy insects are endowed with a very keen sense of smell which will enable them to scent such a treat a considerable distance away.

When the bees visit flowers, their object is, of course, to extract the sweet secretion from the nectaries of the flowers; but these organs are so placed at the bottom of the flower that the bee, while burying itself or only its tongue in the flower, rubs a little dust off the tops of small hair-like projections standing around the flower. This is the fertilizing dust, and is produced on the male flower, and must be carried to the female flower in order that the necessary fructification may take place. In some cases flowers bear both male and female parts, but when this is the case, the latter, by a wise provision in nature, are not ready to receive the pollen when it is ripe and being shed by the anthers. It must, therefore, if used at all, be carried by the bee to another flower, thus effecting cross fertilization. In some flowers pollen is produced more abundantly than in others, and while the bee goes from flower to flower in search of nectar, some of the pollen is left upon the stigmata of the flowers visited, but the bulk of it the bees scrape off their bodies and pack into the pollen baskets formed by projecting hairs on their hind legs. When they have sipped their fill the bees return laden inside and out with food, for their honey sac contains the carbonaceous, the heat giving and fat-forming food, while the pollen baskets hold the nitrogenous, the muscle forming and strength-giving part of the food needed by the bees when at work, and also by the grubs that are fed by the nurse bees. Here we see that while the bees perform a very important work in the fertilization of flowers, they are gathering and carrying home from the flowers two foods, which together form a perfect bee-food, while the former is also one of the most delicious of foods for man.

(To be continued.)

Photographic Hints for Amateurs.

A MAKESHIFT WRITING FLUID.

It is not very generally known that the Eikonogen developer makes a fairly serviceable writing ink.

LUMINOUS LABELS.

Take of Phosphorus half-a-drachm, Oil of Cinnamon half-an-ounce, and mix in a vial or small glass bottle. Heat it slowly until mixed. Labels written with this ink can only be read in a dark room, when the writing will glow like fire-light.

BLACK TONES ON PRINTING-OUT PAPER.

A plucky vigorous negative is requisite; the print should be printed under green glass and toned in the following combined bath:—

Chloride of gold	6 grains.
Tungstate, phosphate or acetate of soda	60 "
Sulpho-cyanide of Ammonium 100	"
Hypo	2 ozs.
Water	10 "

BACKING PLATES.

Here is a formula for making up a “backing” recommended by Mr. T. W. Derrington:—

Caramel	1 oz.
Burnt Sienna (or Lampblack, dry, 1/2 oz.)	1 oz.
Water	2 oz.
Methylated Spirit	2 oz.

To prepare for use dissolve the Caramel in the water, add the finely-ground colour, and then the spirit; shake well before use. It should be applied by saturating a small sponge and dabbing the back of the plate.

DEVELOPERS.

It is desirable that developers should be modified according to the general temperature. The Photographer cannot wholly control temperature, the manufacturer of a plate can to a large extent. But the right temperature is just as essential in making negatives as it is in plate-making. In summer keep the solutions cool, in winter warm them a very little. Too high a temperature produces coarse grained negatives, so will a developer too strongly alkaline. Give full exposures and don't use too much alkali in the developer. Make up a fresh fixing bath daily.

REFLECTED LIGHT.

The following table sets out various materials and the percentage of light reflected:—

White blotting paper ..	82 per cent.
„ cartridge ..	80 "
„ tracing cloth ..	35 "
„ paper ..	22 "
Ordinary foolscap ..	70 "
Newspapers ..	50 to 70 "
Yellow wall paper ..	40 "
Blue paper ..	25 "
Dark brown paper ..	13 "
Dark chocolate paper ..	4 "
Deal boards, clean ..	40 to 50 "
„ „ dirty ..	20 "

STAMPS Week by Week.

A Philatelic Causerie by PERCY C. BISHOP,

Joint Editor of the "STAMP COLLECTORS' FORTNIGHTLY," Ex-Editor of "THE PHILATELIC JOURNAL"
and "PHILATELIC REVIEW OF REVIEWS," General Secretary of the LONDON PHILATELIC CLUB.



THE Inland Revenue prosecution at Cardiff furnished a series of surprises. Two Government clerks, Williams and Rees, as *Hobbies* readers have already been told, were arraigned on a charge of stealing official postage stamps of the kinds known as "J. R. Official" and "Govern-

ment Parcels." These stamps, in the unused condition, are not supposed to reach the public at all, being intended purely for departmental use. Hence the high prices realised for them in the Philatelic market, and hence also the great interest excited among Philatelists by the prosecution at Cardiff. As a result of the magisterial hearing, both Williams and Rees were committed for trial at the Cardiff Quarter Sessions. In the interval speculation was rife as to whether Somerset House would get a verdict. It was contended that even if the defendants were guilty of having misappropriated the stamps they could not be found guilty of theft, because the stamps so taken had been replaced by postage stamps of the same value.

Here came in surprise No. 1. The prosecution, it was found, had decided to strengthen their case by adding a new charge—that of falsifying accounts. Williams now pleaded guilty to each count, but Rees repeated his former plea of not guilty. Now came surprise No. 2. Williams was put in the witness-box, and cross-examined at some length as to his own behaviour and that of his fellow-clerk

Rees. Under cross-examination he contradicted himself freely, and finally drew from the Cardiff Recorder the somewhat strong rebuke that he had "lied at every available opportunity." In the end the unexpected result was: Rees, acquitted; Williams, nine months' hard labour.

If I am not greatly mistaken this verdict will have far-reaching effects. It will in the first place check the growing practice among Government clerks of adding to their incomes by stamp-smuggling, a practice which the Somerset House authorities have been trying for years past to put down. The effect will also be seen in the prices of unused copies of the high values of "J. R. Official" stamps, which will now, I think, attain still higher figures in the Philatelic market.

A daily newspaper for Philatelists—who would have thought, say, ten years ago, that it would come to this! But so rapid has been the advancement in stamp collecting during recent years that the *Daily Stamp Item*, a publication hailing from St. Louis, U.S.A., has been received in this country with a mere shrug of the shoulders, with here and there, perhaps, a murmured "I told you so!" A daily Philatelic paper has been often talked about, but generally regarded as an impracticable idea. News about stamps is not to be had in such abundance as to justify such a venture.

Who will be the new President of the London Philatelic Society?—succeeding the late Earl of Kingston, whose death I recorded last week. Probably Mr. M. P. Castle, J.P. A better man for the post could not be found, and I fully anticipate that when the annual meeting comes round he will be voted into the presidential chair without a dissentient voice.

The London Philatelic Society, I may mention here, in reply to a correspondent, enjoys and deserves the reputation of being the finest organisation of the kind in this country. The Hon. President is the Duke of Saxe-Coburg, and the Hon. "Vice" is H.R.H. the Duke of York, and both of these have at various times visited the Society's cosy rooms at

Effingham House, Arundel Street, W.C. The subscription to the London Philatelic Society is £2 2s. per annum, which sum includes a supply of the various Philatelic works published by the Council. The City of London Philatelic Club, another metropolitan society, is intended more for the purposes of social intercourse than for scientific Philatelic discussion. The subscription here is only 10s. per annum; country members 5s. Full particulars can be obtained of the Corresponding Secretary, Mr. C. Forbes, 42, Strahan Road, Bow, E. Other societies exist in most of the large provincial towns, and I can give full particulars of any of these that readers may desire to join. The advantages of joining some good society are inestimable. A stamp collector who never meets another stamp collector is very much in the condition of a fish out of water.

By the way, Mr. William Ditchfield, of Wigan, writes me that he is endeavouring to form a Philatelic Society in that town, but so far has met with scant success. This is not well. The Wigan Philatelists are losers by the absence of a well-conducted rendezvous where all could meet to discuss their stamps, exchange views, exhibit new issues, and so on. All in Wigan who are really earnest Philatelists will at once place themselves in communication with Mr. William Ditchfield, of 184, Dornung Street. Such help as *Hobbies* can give will be cheerfully bestowed.

Still another new society, this time at Salisbury. Well, the more the better; they all do good, and this one promises to do its full share of useful Philatelic work. The President, of course, is Mr. William Brown. One would have experienced no slight shock on hearing that any other gentleman had been chosen for the post. Apart from his eminence in Philately, Mr. Brown is *persona grata* in the social life of "old Sarum." The Vice-President of the new Society is Mr. Stacey Skipton, another well-known Philatelist, who has deserved well of his fellow Philatelists by the compilation of an admirable album for the Stamps of the British Empire. The Salisbury Philatelic Society contemplates lectures with magic lantern illustrations and other such luxuries, and altogether means to make itself a power in the land. Mr. Weston Major, I may add, is the Hon. Secretary. Unfortunately, the report I have received does not give his address, but I have no doubt that any Salisbury readers wishing for particulars concerning the Society can obtain them from Mr. William Brown, of St. Thomas' Square.

PLATE NUMBERS OF ENGLISH STAMPS—Continued.

THE EIGHTPENCE.

The plate numbers, or rather plate number, of the eightpenny value need not trouble us greatly. There is but one—Plate 1, orange-yellow, perf. 14, garter watermark. Plate 2 was prepared for use, and it is known that a few sheets were printed and perforated, so that a specimen may possibly turn up some day.

Before leaving the eightpence, it is important to notice a variation of colour. The normal shade is orange-yellow, but specimens exist in a distinct brown tint. These are selling at ten,

nay twenty times the price of the common orange variety. Possibly some lucky reader of *Hobbies* will discover that he owns a brown eightpenny, and has all along regarded it as of very trifling value.



THE NINEPENCE

is an interesting value to the student of plate numbers. Plate 1 was destroyed as defective; plate 2 is found in two shades, bistre and straw.

Plate 3, the rarest in this series, is distinguished from its predecessor (both being unnumbered) by a thin white hair-line crossing the outer angle of each of the corner letter-squares. The collector who finds this stamp in his possession may account himself a lucky fellow. Prices ranging from £10 to £30 have been paid for specimens.

So far the watermark of all the ninepennies is that known as emblems. Plate 4, the first numbered plate, is found both with the emblems and spray watermarks, the colours being respectively dark straw and straw.

Plate 5, emblems watermark, bistre, is yet to be found. Only a few sheets were issued, and if a used specimen were found it would undoubtedly fetch a high figure.

THE TENPENCE.

Like the eightpence, the tenpenny value is poor in plate numbers. It has two certainly, but the second is so rare as to be unobtainable by more than the wealthy few. Of plate 1 there are three varieties—dark red brown, watermark spray; dark red brown, watermark emblems, and pale red brown, watermark emblems. The second of these is extremely rare; as rare, in fact, as the 9d. hair-lines.

FOREIGN STAMPS.

Our "New Year" Packet contains 86 different Stamps, including Set 6 Cape, $\frac{1}{2}$ d., 1d., 2d., 4d., 6d., and 1/- Bulgaria Provisional, Travancore, French Levant, Tientsin, Finland, 2 Bolivia, Chili, Dutch Indies, England Official, Venezuela, Japan, Sweden Official and Unpaid, Italy, 1 lire, Indian Envelope, Egypt, including Official, U.S. (Columbian) 8 Escudos (obsolete), Set 6 Switzerland, 1862, etc. etc. Free 7d. Selections sent on approval. Liberal discount, 36 pp. Illustrated Catalogue for Collectors FREE. Wholesale List for Dealers, FREE. 16 pp. Exchange Circular, 3d. FISHER, TITLEY & Co., Stamp Importers, BATH.

STAMP COLLECTORS

Should send 1d. Stamp to HARRY HILCKES & Co., Ltd., 64, Cheapside, London, E.C., for "Specimen" copy of **Stamp Collectors' Fortnightly**. Contains articles for beginners, as well as for advanced Collectors.

THE BEST STAMP PAPER GOING!





NOTES OF THE WEEK.

THE photographing of stars is to an astronomer a work of great help, but it is not an easy matter to accomplish. The fainter the star, naturally, the longer the exposure. The Dog Star, the largest and most brilliant fixed star in the heavens, is conspicuously visible above the south-east horizon. Half a second exposure is sufficient for a star just visible to the naked eye; twenty seconds may be given for stars of the tenth magnitude, and thirty minutes to an hour for the faintest telescopic stars.

Here are a few hints upon how to select a hand camera. For all-round work have a rectilinear lens of a five or six inch focus on a $\frac{1}{2}$ -plate. Some authorities advocate lenses of longer foci, whilst others give the required focus as $3\frac{1}{4}$ to 4 inches. We propose a medium. Finders should be large, and it is very desirable that they should be correctly adjusted to the focal length of the lens used in the camera, in order that the exact counterpart of what the *lens sees* may appear on the finder. The shutter should be easily adjustable to varying speeds, not complicated and arranged to permit of the maximum amount of light and the minimum of vibration. It is not necessary or desirable that the shutter should give a very short exposure. For all practical purposes the quickest speed may well be one-tenth of a second. In working with a hand camera it is well to use a fast plate, and in order to get the best results out of it study the varying conditions of exposure and development, whatever anyone may say to the contrary. It is quite impossible to expose or develop *by rule*.

Mr. Chapman Jones, F.C.S., F.I.C., writing recently upon "Purity" in connection mainly with the photographic negative, said:—With a properly prepared plate the very best of negatives may be made, and until the photographer can produce a clean negative, with a pure silver image, he may be sure that his apparent success will be due to good luck rather than careful work. The best way to prevent foreign matter from contaminating the plate is to obviate its formation by the use of a sufficient quantity of sulphite. In order, afterwards, to remove it, wash away with water, rendered slightly alkaline; this is not, however, easy to accomplish. Mr. Jones continues:—To use acid solutions or the ordinary cleaning baths is to deceive oneself, for they

generally render the colouring matter less soluble, though they may heighten its colour.

We understand that there will be an exhibition at Scarborough, presumably of a general character, from May to October. From the prospectus we note that Photography and photographic apparatus will be included. In connection with the former, allied with art and literature, a gold medal and diploma, four silver medals, and nine diplomas are to be awarded. Mr. Joseph Davis, of Exhibition Buildings, Scarborough, will send full particulars on application.

Nitrate of Silver is now being sold at 1s. 9d. to 1s. 9 $\frac{1}{2}$ d. per ounce. In 1887 Messrs. Marian and Co.'s price was 3s. 6d. per ounce. Dry plates and sensitised paper should be cheap.

The question is often asked—"What is the life of a process block?" Mr. Sunderland, in the course of a lecture delivered before the members of the Photographic Club, said that in a capable printer's hands 200,000 copies could be made from a good block. The manager of the Gutenberg Press, Limited, who prints the *Optician*, states that his firm recently worked 500,000 impressions off a block prepared by them, and that the quality was so well maintained that, except to the eye of an expert, no difference was discernible.

A Photographic Exhibition will be held at Cheltenham, under the auspices of the Amateur Photographic Society, from March 3rd to the 6th. Two gold medals and several silver and bronze are offered for competition. Mr. Philip Thomas, College Pharmacy, Cheltenham, will furnish full particulars.

In connection with the *Stock-keeper* Exhibition we notice that the Ladies' Kennel Association offer a "silver medal or a spoon" for the best Photograph of a group of dogs.

At a recent meeting of the Croydon Camera Club, the President, Mr. R. Maclean, F.R.P.S., explained a newly-invented automatic photographing machine. This machine, we understand, prints, develops, and finishes several thousand prints a day at an estimated cost of about eight prints from a half-plate negative for one penny. The image is on bromide paper and developed out. The prints are on long strips of paper.

In a short lecture on "Light and Lenses," Dr. Cecil Shaw, a Vice-President of the Ulster

Amateur Photographic Society, showed how the difficulty of bringing near and distant objects to a common focus can be overcome by the use of stops or diaphragms. These are best measured by their relation to the focal length of the lens— $f/8$, he explained, is the same for all lenses. Rapidity in a lens depends on the amount of light reaching the photographic plate, and the amount of light depends upon the stop used. The area of a stop varies as the square of the diameter. Depth of focus therefore depends entirely on stop and focal length. The angle of view, on the other hand, depends on accuracy of workmanship, correcting various defects in the simple lens, so that it gives an image clear and sharp over a large area. When the breadth of area is more than the focal length, the lens may be called a wide-angle one. Take for example—a five inch lens which when stopped down covers a half or even a whole plate, is a wide angle, but if used on a quarter-plate it ceases to be a wide angle. With regard to the choice of a lens, Dr. Shaw said, as we have already said in these columns, the most useful for general use is a rapid rectilinear. He holds that next to this, and cheaper, is the long focus single lens, say of ten inch foci for half-plate. Such a lens will be excellent for landscape, and quick enough for instantaneous work in open country or at the seaside. Dr. Shaw paid a high compliment to Lancaster's lenses, and said:—"Looking back upon some fourteen years of photographic work, I can see that some of my best work was done with my first love in lenses—a 15s. single lens by Lancaster." This testimony we can most fully endorse, not only from our own personal experience, but from a knowledge of the work of hundreds of photographers who use Lancaster's lenses.

Here are a few practical maxims on Bromide printing taken from a short article in the *Amateur Photographer*:

(1.) A full exposure, rather tending towards over exposure, gives softness rather than contrast.

(2.) A short exposure tending towards under-timing tends to accentuate contrasts.

(3.) Strong lighting reduces the contrast of the negative.

(4.) Weak lighting (produced either by intervening layers of tissue paper, or ground glass, or opal glass between the negative and light, or by increasing the distance between light and negative) tends to increase contrasts.

(5.) A strong developer tends to brilliancy, vigour, brightness, and blackness of deposit.

(6.) A dilute developer has the contrary tendency, i.e., softness and greyness of deposit.

(7.) Increase of bromide or other restrainer tends to increase the length of scale of tones, i.e., to emphasise contrast, and sometimes yields a vigorous print from a weak negative.

(8.) Correct strength of light and time of exposure are of more importance than modification of developer.

Practical uses of Photography are numerous, and the science has its votaries all over the world. From the Malay Peninsula comes the information that an amateur photographer at Taiping is hard at work preparing a set of lantern slides representing one of the rarest collections of Perak postage stamps.

The Hobbies of a Family.

We do not make a practice of publishing letters which we receive from our readers, but the one from which we give an extract below is of so interesting a character that we are tempted to depart from our ordinary rule. Our correspondent says:—

"Allow me to add my thanks to the thousands you must have received for bringing out such a paper as *Hobbies*. I have taken it since its first week, and would rather miss any of my other papers than it. When I first got it I read, principally, "Photography and Lantern Notes," as I took an interest in both, and worked at both. Now I have added to them Fretworking, at which I think (owing to your very clear and simple instructions) I am making some progress. Then when I had read the paper through I passed it on to my next brother, who goes in for Stamp collecting. My third brother finds nothing to suit him, for which he is sorry. He goes in for Fossils, etc., of which he finds plenty on the seashore here (Fleby). My youngest brother also finds nothing to interest him. He is always either making model boats or engines, and he thinks you might have some papers on either or both subjects. My father reads, principally, the "Hobbies That Pay," Rabbit and Pigeon keeping being his hobby. You will see by this that we, as a family, go in for *Hobbies* of some sort or other, therefore the paper suits us admirably. My three sisters also (we are a family of seven children) have their fancies, one doing "Macramé" work, another Rug making with waste bits of cloth, and the youngest also doing the same. One brother is just saying that he shall go in for Egg collecting and Butterflies when the time comes, and my youngest sister says she shall start collecting Ferns and Wild Flowers (pressed). Then my youngest brother says he will want an album and will commence collecting different classes of Seaweed, etc. Are you thinking of having any articles on any of these subjects?"

We are always glad to receive letters of this character, and we may take the opportunity of assuring our present correspondent that the whole of the subjects he mentions will in due course be dealt with in *Hobbies*.

—:o:—

ARITHMETICAL PARADOX.

A few days ago the *Birmingham Daily Mail* submitted the following arithmetical paradox to its readers:—There are two vacancies in a public department, and after interviewing a number of candidates, two are finally selected to fill them. They are introduced to the Committee, and A is duly appointed at a salary of £100 per annum with an annual increase of £20 for ten years, when the maximum payment is reached. A, being a bachelor, accepts and leaves the room. B enters and the same terms are offered, but B being a married man suggests to the Committee that, having a family, he would be very much obliged if the £20 could be divided into four quarterly increases of £5. After a few moments' debate the Committee consent to the arrangement. Now let us see what happens. A gets his £100 for the first year, £120 for the second year, and so on until in ten years he will receive in all £1,900, while B, with his quarterly advance of £5, will in ten years get £4,900, that is £3,000 in excess of the total earnings of A. The salary of A, after the first year, goes up £20 per annum, but the salary of B, although increasing only £5 per quarter, goes up £80 per annum after the first year.



CHAP. XVI.—STAINS, ETC.



EVER and anon the cry is raised by enthusiastic Fret-workers for a perfectly transparent and colourless Varnish, Stain, or Polish, which will enable them to preserve such white woods as Chestnut, Sycamore, and Holly in their native purity. How to keep the ivory-like surface on fine White Holly is a question which is always being asked, and which, alas! still remains unanswered. All white woods get so easily soiled when

left unpolished, and time has such a persistent tendency to turn the white to yellow, that the agitation for some permanent fixative can hardly be wondered at.

No Stains are absolutely colourless. Many may be advertised as such, but if a White Holly article which has been varnished with one of these be compared with a newly sanded piece of wood, the difference will at once be noticed, and in the course of a few months will be very apparent.

SHELLAC.

Shellac is almost without colour, and although it will not meet the Fretworker's highest wishes it may be found most useful for finishing articles which have been cut in white. It does not produce a polished surface, but it fills up the pores of the wood and thus lessens the chance of its being soiled by dust. Its preparation is simple:—Procure some Bleached Shellac from a druggist, break it into small pieces, and place in a bottle or small earthenware pot,—the bottle for preference. Into this pour Methylated Spirits in the proportion of one part of Shellac to two of Spirits. Allow this to stand over night, when the Shellac will be dissolved. If any grains are lurking about, the whole may be strained through a piece of fine muslin.

This preparation, as may be seen, is a kind of Spirit Varnish. It can be applied with a soft brush, or rubbed on with a wad of cotton or with a small sponge. It dries very quickly so that two or three coats may be given without having to lay the article aside. After the first coat, the work (when the liquid has been thoroughly absorbed) should be rubbed down with glasspaper, and this should be repeated

after the second coat if there is any sign of roughness. When the last coat has been given, a smart rub up with fine soft paper helps to give a burnished effect on the wood.

Shellac, as we have before pointed out, is very useful when Chinese Ink lines have to be drawn on the wood. In a great many Fretwork Patterns, as for example in the "Aphrodite" Bracket presented with *Hobbies* No. 2, veining and other lines are indicated on the solid parts of the Design. These often puzzle amateurs, especially when they are in the interior, and when a sufficiently fine drill cannot be had to obtain a start. For our own part we object to the exaggerated introduction of veins and intersecting lines in Fretwork. Although effective in drawing they are lost in the actual work, and the time and trouble which are spent in trying to reproduce them faithfully with the Saw are often practically wasted. When it falls to the amateur's lot to cut out such Patterns, let him, by all means, run over with the Saw those lines which do not require a re-threading of the blade; but if they are shewn here, there, and everywhere in the interior, let him purchase some Chinese Ink, and, after applying a couple of coats of Shellac, trace on the black lines with a steel pen. The Ink must on no account be put on without having first applied the Shellac, as all the pores of the wood would be open, causing the black fluid to spread over the grain, and thus ruining the work.

PALE GLAZE.

Pale Glaze is one of the best ready-made preparations which are supplied for finishing light coloured woods. It is transparent, and all but colourless. For all white woods we could recommend it before the ordinary White Varnishes which, on the whole, are far from satisfactory. Like other preparations it is sold in bottles, and may be had from dealers in Fretwork materials.

OIL.

Ordinary boiled Linseed Oil is often used in preference to Varnish or Polish. It is not suitable for light woods, but for dark varieties such as Black Walnut and Rosewood, if not too highly figured, it gives a capital dull finish. Boiled Linseed Oil should be used, and after it has been applied the article may be burnished by rubbing with soft rag or paper. A coat or two of Shellac may be added, and is often an improvement, as it helps to heighten the effect of the Oil, and gives a better finish.

EBONIZING.

So many good Ebony Stains can be purchased from dealers that it would be unprofitable for an amateur to try and make one. Dull Stains should always be used, and may be had from the usual dealers in Fretwork materials. Two coats, or perhaps three, should be applied with a mop brush, and when this is dry the wood should get a rub up with a hard nail brush. The result is a dead black, and a very fair imitation of Ebony. Sometimes a polish with Beeswax and Turpentine will be found effective, but it is not desirable to put on a high finish. Black Enamel or Brunswick Black should not be used for Fretwork, as their brightness utterly spoils the appearance of the wood.

Special Offer of

FRENCH FRET DESIGNS.

For 1/-, Post Free, we will send a parcel of 12 Splendid French Designs, beautifully printed, containing Pipe Racks, Photo Frames, Cigar Stands, Watch Stands, Easels, Brackets, Flower Stands, &c., &c. We guarantee 6 of the above to be fully worth the money.

Grand French Catalogue of Miniature Designs. Splendid Collection of several hundreds of the best Designs ever published, Post Free, 1/- STAR SAWs, 1/6; LIGHTNING SAWs, 1/3; SWISS SAWs, 10D. FOR 6 DOZEN, POST FREE.

Send 1d. stamp for Tool and Wood Lists.

HINDLEY & JONES, Fretwork & Tool Stores,
NORFOLK MARKET HALL, SHEFFIELD.

FRETWORK & CARVING.

HIGHEST AWARDS AND GOLD MEDALS

received for our patterns in all parts of the empire

The special advantages we enjoy, coupled with the enormous stocks we hold, places us A 1 for variety, quality, and price, three great things for purchasers to consider.

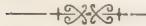
Our 2/6 Beginner's Outfit

Consists of

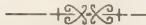
12 inch Steel Frame, 24 Saw Blades, 3 Files, 3 Designs, Awl, Cramp, Wood, and Instructions.

OTHER OUTFITS:

3/6, 6/- & 12/- each



Assorted Parcels of Fret-
wood, 12 feet, 4/-
POST FREE.



Books of Fret
AND
Carving Patterns
1/-

OUR NEW CATALOGUE containing 1,000 Illustrations of Fretwork, Carving, Picture Framing, Bent Iron and Bamboo Work, Designs and Materials, 6d., post free.



With this New Edition of 20,000 copies, we shall present a finely finished pattern of the Crescent Wall Bracket

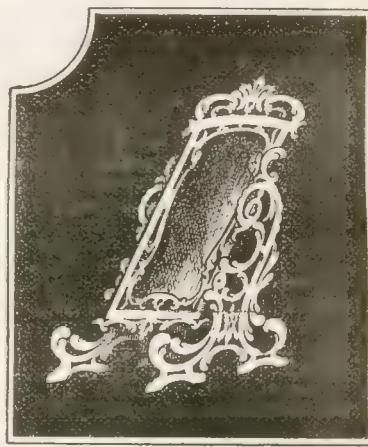
HARGER BROS., Settle, Yorks.

'Hobbies' Designs.



WING to the very heavy expense involved in the production of the Designs forming our Weekly Presentation Supplements, we cannot supply these with back numbers of *Hobbies*. Copies of them may, however, be obtained on sending threepence for each Design required to the Publisher of *Hobbies*, Bouverie House, Salisbury Square, London, E.C.

For the convenience of our readers we give below a complete list of the Designs already published.



No. 11. CABINET PHOTO FRAME.



1. Midget Photo Frame, with Overlay Ornament.
2. "Aphrodite" Mirror Bracket
3. Bent Iron Work Gong Stand
4. Hanging Twine Box, with Overlay Ornament.
5. "Card" Inkstand.
6. Carved Adams Frame.
7. "Gasalier" Bracket
8. Bent Iron Work Table Stand, for Cards, etc.
9. Carved Lamp Bracket.
10. Model of a Victoria.
11. "Toilet Glass" Cabinet Photo Frame.
12. "Swing-Boat" Match Holder.
13. Hanging Fretwork Calendar.
14. Bent Iron Work Grill Panel.
15. Carved Blotting Book Cover.
16. Prize Card Receiver.
17. Panel with Overlaid Ornaments.

The following Designs are in preparation—

18. Bookshelves.
19. Two Stencil Dado Bands.

NOTE.—The Patterns not otherwise designated are Fretwork.

How to Preserve Flowers

Without destroying their Natural Forms.



The firmer the leaf in its position the more easily will the work be carried out; and to this firmness should be added strength of texture. A common garden rose, the day after it has opened, offers a good subject for coating; but owing to the great number and close proximity of its leaves the beginner should commence with something simpler, say a primrose.

FIRST METHOD.—Grind gum Arabic of the best quality to a fine powder. See that it is free from all foreign particles. Add to it boiling water in very small quantities at a time, and stir until the gum is dissolved. Only so much water should be used as will suffice to dissolve the gum. Now to the liquid gum add about one-sixth of its total bulk of glycerine, and stir well. With this mixture, and with a camel-hair brush in which there are no loose hairs, give the upper surface of the leaves as thin a coat as can be laid on. The interior of the flower cup at the base of the leaves must receive special attention. Stand the flower upright for a few hours and then coat the under surface. Should any of the leaves tend to curl when drying, a little support will arrest the mischief. When dry another coat is given; this time it may be on both upper and under surfaces. The flower is then treated in the following manner:—The finest plaster of Paris is worked down in a mortar, or, in default of this, by means of a dinner-knife handle in a basin, until it is absolutely uniform. It is now tied in a piece of linen (*not muslin*) pudding fashion, and this extemporised bag is beaten and shaken over the flower. A fine cloud of plaster should fall. It is well for two persons to undertake this part of the work. The flower being held by its stem is turned over and over so as to allow every part to receive its covering of plaster. Next, boiling water is placed in an open vessel, and the flower is held in the steam that rises for three seconds—literally *three seconds*, not merely

an uncertain brief space of time. The steam thoroughly damps the powder, and if the flower be now set aside the coating will harden. The stem may be treated in the same manner, with this exception:—The plaster may be gently scattered on while the stem is wet. It is well also to lay another coat of gum over this plaster when set, and to add a finishing coat of the latter. The writer has kept a flower group, prepared in this manner, for two years under a case, and has never observed the slightest trace of cracking.

SECOND METHOD.—Washing soda is dissolved in boiling water, and allowed to stand until cold. As much soda as the water will dissolve should be used. The flower is dipped into this and removed instantly. It is now treated according to the first method. In the case of a primrose the soda bath is not required, but in dealing with flowers rich in vegetable oil it is essential. It is well after giving the bath to dip the flower in clean cold water.

THIRD METHOD.—Liquid gum is prepared in the manner already indicated. A saturated solution of pure starch is now made, equal in quantity to the gum. The two are mixed, and glycerine is added to one-tenth of the bulk of the mixture. The preparation must be used cold, and be laid on the leaves as described under the first method. When the first coat has been given, plaster is dusted on; and when the latter after steaming has set, another coating of gum-starch may be given, and so on, taking care to finish with a layer of plaster.

A word of advice as to the shape and way of using the brush may be given. A long-haired pointed brush is the best. A fan-shaped brush is worse than useless. The brush should be twisted until it resembles a golf club, and the gum is laid on with the under surface, *not with the point*. But the point may be used with advantage when working the bases of the leaves.

FOURTH METHOD.—A piece of silver leaf, such as druggists use for coating pills, is laid between two pieces of paper, on one of which outline designs of the flower leaves have been drawn. The designs should be slightly larger than the leaves of the flower. The silver between its paper protectors should be laid on a piece of smooth wood, and the leaf designs cut out with a very sharp penknife. Each leaf will, of course, have two designs, one for the upper, and the other for the under surface. The leaf to be first operated on is now coated with gum mixture on one surface. This should dry, and another coat be given. In practice, of course, all the leaves would be gummed at one time. A fine pointed camel-hair brush has its extremity dipped in gum. With this the silver is picked up and laid in position. Then is brought into play an instrument which will probably require to

be made. The writer uses a pair of ordinary dissecting forceps which have had the half connected with the points, or gripping end, cut away. To each blade of the spring end is riveted a flat piece of ivory (metal would also do). When the forceps are pinched the ivory blades are in close apposition. Each has a breadth of half an inch. A pair of forceps, with one slightly convex and one slightly concave receiving blade, will be useful. With one or other, according to the shape of the flower, the leaf is grasped; and it is always best to lay the silver on both upper and under surface before the leaf is so seized. Gentle pressure is used. Any free margin of leaf is turned over, and a narrow streak of gum having been laid on it, is pressed down. At the bottom of the cup a strengthening piece of silver leaf should be added. This may be circular, and fix the bases of the leaves.

When it is desired to use gold leaf, exactly the same method is employed. A coating of silver leaf before the gold is laid on strengthens the flower.

Outside it is very necessary to lay connecting silver, or gold, between the stem and the leaves, and in this situation two or more layers are desirable.

Pure strong liquid gum, with a little glycerine in it, will unite two layers of silver and gold leaf. The glycerine is to prevent the gum cracking, which might rupture the metal coating. In this way, if desired, by adding layer on layer, and always taking care to protect the bases of the leaves both inside and out, a flower can be made sufficiently strong to be preserved without a case.

In the process of electro coating of flowers, some of the materials are so dangerous to use that the work should be undertaken only where a sudden outbreak of flames would cause no serious mischief. Sixteen parts of white wax are melted in a water bath. As much asphalt is dissolved in bisulphide of carbon as it will take up. Of this mixture eight parts are added to the wax. Two parts of india rubber are added, then twenty parts of spirits of turpentine; lastly sixteen parts of phosphorus.

One person must keep the water bath stirred while another adds the ingredients. When the mixture is cool the flower is dipped into it. Then it is immersed in a dilute solution of silver nitrate or gold chloride. One electrode of a battery is connected to the stem of the flower by a wire, the other is free in the liquid. Upon the flower metallic silver, or gold, will be deposited, according to the nature of the bath.

This process, however, is not only troublesome but rather dangerous, and the other methods will be found to give equally good results.

BENT IRON WORK.

Price List, Design Sheet, and particulars of our Special Tool, "THE IONICAL," post free, Id.

→ BAMBOO WORK, ←

Every requisite at low prices. Sole Agents for the new Patent Screw Plug Joint, cheap and simple. Price List, with full particulars, on receipt of 1d. stamp.

THE AMATEUR'S MARKET, LEEDS.
8, BRITANNIA BUILDINGS,

THE

SWAN FOUNTAIN PEN.

Manufactured in three sizes at

10/6, 16/6, 25/-

HOW MR. HALL CAINE WROTE THE "MANXMAN."

"Yes, if the fact is of any consequence, you are very welcome to say that I wrote the 'MANXMAN' with the Swan Fountain Pen. It has become quite indispensable to me. I can use it with ease and certainty anywhere, and at any time, even in the dark, in bed, and on horseback."

HALL CAINE."



REDUCED FROM SIZE.

We only require your steel pen and handwriting to select a suitable pen.

Complete Illustrated Catalogue sent post free on application.

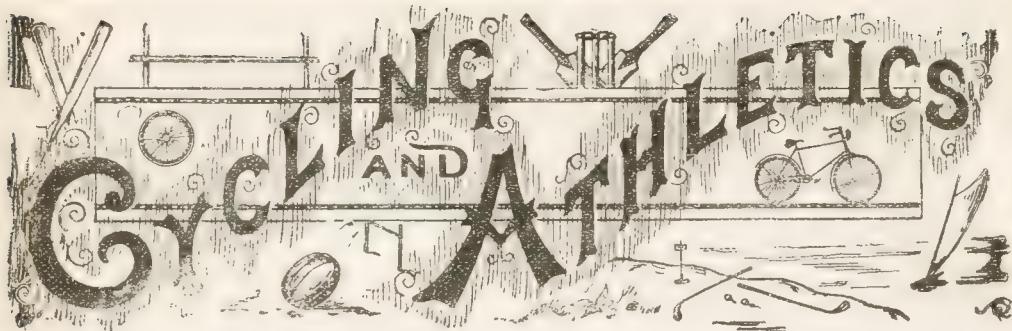
**Mabie, Todd, & Bard,
93, CHEAPSIDE, E.C.,
or 95a, REGENT ST., W.**

OTHER TESTIMONIALS.

From MR. RICHARD PENDEREL.—Five hundred thousand words have been written in fifteen months with one "Swan" pen, and without the slightest evidence of wear in the pen.

From THE ARCHBISHOP OF YORK, Coatham, Redcar.—Though I have only had your pens in use for a month, I must write a line to say how intensely grateful I am to you for bringing them to my notice.—Yours very gratefully,

W. D. DALRYMPLE MACLAGAN.



NOTES ON SPORT.

THE manner in which some policemen think they are entitled to treat cyclists is well exemplified in what has been called "the Wolverhampton case," which is still before the courts. The particulars were as follows: In a certain road near Wolverhampton there is a smooth flat track at one side, which might be termed a footpath, or might not. It is much smoother and firmer than the road, but it is uncurbed. It is on the same level as the road, and there is nothing whatever to distinguish where the one leaves off and the other begins. Whether such a track is a footpath in the eye of the law remains to be seen. At any rate, along this path on one occasion, when the road was bad, wheeled a Wolverhampton cyclist. Mr. Policeman was, however, in hiding behind a pillar, and when the rider came level the arm of the law rushed out and seized him, with the natural result that both rider and machine were upset and damaged. Name and address were duly demanded and supplied, but in addition to this the officer saw fit to haul his victim to the police-station. Subsequently the cyclist was fined for riding on the footpath in the ordinary way. The next act was the suing of the policeman in the County Court for damages caused by the alleged unnecessary and illegal roughness which he had used. In this the cyclist was successful, but the latest development is an appeal for a new trial, and this has now been granted.

Cyclists are treated sometimes with such scant justice when they have to appeal to the law for protection that the Wolverhampton case, so far as it has gone, must be regarded as highly satisfactory. It is evident, however, that the policeman who knocked the cyclist over is being supplied with money to keep the law in motion, or more probably he is being made a figure head for the anti-cycling prejudice which is behind him. It is clear that someone means to beat the cyclist eventually by sheer weight of gold. It is decidedly rough on the wheelman to be forced to such expense, as is necessitated in these cases, merely to defend himself against what appears to have been an outrageous and utterly indefensible act on the part of the police-officer.

Some people seem to take a keen delight in any kind of sporting contest to which the title "International" can by hook or crook be applied. If two Londoners make a running match, that match will be glorified into an "International Athletic Competition" if it should be discovered that one of the contestants happens to have been born in Glasgow. In most English football teams will a Welshman or a Scotchman be found, and in the same way Englishmen born will be found playing football in Edinburgh and Cardiff. The so-called international football matches should, perhaps, be more correctly regarded as district championships. These remarks are prompted by the announcement of the institution of a Welsh Cross-County Championship, which in itself will no doubt be a most interesting event.

Some people regard the formation of such a race as this merely as a stepping-stone to yet one more "International" contest. It is difficult to see where the benefit from such an arrangement would come in. We are inclined to think it would be preferable that, both in football and at cross-country work, Wales and England should count as one. Wales, taken as a separate country, can never stand much chance against England, but her individual clubs, at Rugby

football at any rate, are quite as good as ours. They would stand a better chance of distinguishing themselves in the English county championship contest, than in the somewhat farcical annual international match.

There is not much new to say about Association football. Aston Villa appear to have recovered themselves and to be going ahead very strongly, while Derby lost a much-needed point the other day by only making a draw of it with the West Bromwich Albion, a club which figures last of the first sixteen. Everton are lying handy, and there seems little probability at present of the three leading clubs being displaced.

Durham has defeated Northumberland in the Northern section of the Rugby County Championship contest.

It is stated that among Dr. Jameson's little band on the occasion of his ill-fated expedition there were a good number of prominent sportsmen. Captain Coventry, indeed, owes his presence in South Africa entirely to cricket. He went out for cricket, and stayed on in the country, where he has now been for some seven years. Several prominent English football and cricket players were connected with the expedition.

The amount of "copy" which the sporting papers manage to make out of the Inter-University Boat Race is certainly extraordinary. Everyone with a genuine love for honest amateur sport loves the boat race. That goes without saying, but the columns and columns of mere names and weights with which the general reader is inflicted for months on stretch before the event cannot tend to increase its popularity. Both Universities are now getting their men into full training work.

The Marquis of Queensberry has taken strongly to the wheel, and has been riding vigorously for some time. He now desires to try his hand at competition, and offers to race any amateur of his own weight (11 stone) for £100 a side. As no amateur could accept the challenge and still retain his amateur status, his lordship may possibly be disappointed. There are, however, just at the present time a good many amateur riders who are on the verge of entering the ranks of the professionals. Possibly one of these may be tempted by the offer of a match with a lord to make the bold plunge to which he has not yet quite made up his mind. We shall be much mistaken if the Marquis does not lose his £100, unless he happens to be a faster man than we give him credit for. That he is a good rider we know, but when £100 can be picked up for a little bit of fast riding, it generally happens that the prize goes to a man who is far beyond the merely "good" stage.

Olympia continues to attract, or rather it should be said, the interest in the cycling there has gone up by leaps and bounds. The management is good. The riders are well paid for their work, but the terms are liberal, and the best men and the best riding are guaranteed. It is wonderful how skilful the men become after a little practice on the small nine lap track. To look at it one would think speed almost out of the question, but the banking has been well done, and when once used to the swing of the path the riders seem to slip round the bends with wonderful speed and accuracy. It is satisfactory to note that the lady riders have been relegated to a somewhat secondary position. The men are now the attraction. It is not too much to say that the best riders in Europe are engaged.

PRIZES & Competitions.

Suggestions Competition.

We will give a Prize of ONE GUINEA for the best, and one of HALF-A-GUINEA for the second best, list of TWELVE HOBBIES suitable for treatment in this paper. The subjects which have already been written upon may be included if the Competitor thinks well to do so.

It must not be forgotten that *Hobbies* is intended to deal with the recreative occupations of ladies as well as with those of the other sex. What we wish every Competitor to do is to make a list of the Twelve Hobbies which he or she may think more interesting and more useful than any others, and arrange them in what may be considered the order of their importance.

The Prizes will be awarded to the lists which we regard as the most suggestive and best calculated to appeal to the interest of the largest number of our readers.

All envelopes should be marked "Suggestions Competition," and must arrive at our office to-day, February 8th.

Photography.

Every month we give a Prize of TEN SHILLINGS for the best PHOTOGRAPH and FIVE SHILLINGS for the second best. Subject for this month—Groups, Portraits, or Animals. Photographs cannot be returned, and we reserve the right to reproduce any of them in *Hobbies* if thought desirable. Photographs for this Competition must be sent to our office not later than February 29th, marked "Photograph."

Lantern Slides.

A First Prize of TEN SHILLINGS, and a Second Prize of FIVE SHILLINGS will be given for the best Sets of THREE PHOTOGRAPHIC LANTERN SLIDES. Subject for February:—One Landscape, one Seaside, and one Architectural Slide.

Slides will be returned if fully stamped and addressed labels are sent.

Mark "Slides," and send to our Office not later than February 29th.

Bent Iron Work.

For the best BENT IRON WORK GRILLS, made from Presentation Design No. 14, we offer one Prize of a GUINEA, and one Prize of HALF-A-GUINEA.

All matters relating to the actual work, i.e., width of metal, method of fixing, etc., are left entirely to Competitors, and the awards will be given to those examples which shew the best general work.

Every Competitor should write his or her name clearly on a label which must be attached to the Grill itself.

All Grills sent in for Competition will be returned if desired, and for this purpose fully stamped and addressed labels must be enclosed. In no case can articles be returned unless sufficient stamps are sent.

Articles should be marked "Grill," and must be received at our Office not later than March 31st.

Fretwork.

For the best FRETTWORK MODEL of a VICTORIA, made from the Design presented with *Hobbies* No. 10, we offer Two Prizes:—

First Prize—An "IMPERIAL" TREADLE FRETSAW, with Superior Tilting Table for Inlay Work, Vertical Drilling Attachment, and all Modern Improvements.

Second Prize—A Finely Finished Treadle Fret-saw, with Nickel-plated Tilting Table, Emery Wheel, etc.

The choice of wood, method of cutting, and all matters relating to the actual work are left entirely to the Competitor. We would strongly urge, however, that all Articles should be left plain, and that no polish, varnish, stain, or paint of any kind be used.

Every Competitor should write his or her name clearly on a label which must be attached to the Victoria itself.

Articles sent in for Competition will be returned, and in every case it must be stated clearly whether they are to be sent back by post or rail. If by post, sufficient stamps must be enclosed, and these should be affixed to the addressed label. If returnable by rail, the name of the nearest Railway Station must be clearly given.

All Articles sent in for Competition should be marked "Victoria," and must be received at our office not later than March 31st.

Wood Carving.

For the best CARVED BLOTTING BOOK COVERS, made from Presentation Design No. 15, we offer Two Prizes:—

First Prize—ONE GUINEA.

Second Prize—SET OF TWELVE SUPERIOR CARVING TOOLS.

The choice of wood and method of carving and finishing are left to Competitors.

Every Competitor must write his or her name clearly on a label which should be pasted to the back of the article.

Articles sent in for Competition will be returned if desired, and for this purpose fully stamped and addressed labels must be enclosed. Blotters cannot be returned unless sufficient stamps are sent.

Articles should be marked "Blotter," and must be received at our office not later than April 30th.

Notice to Competitors.

All Articles, Sketches, etc., for Competition should be addressed to the Editor of *Hobbies*, Bouverie House, Salisbury Square, London, E.C. The name and full address of Competitor must in every case be sent.

NOTE:—No correspondence can be entered into with Competitors, and all awards made will be final.

NOTICE TO CONTRIBUTORS.

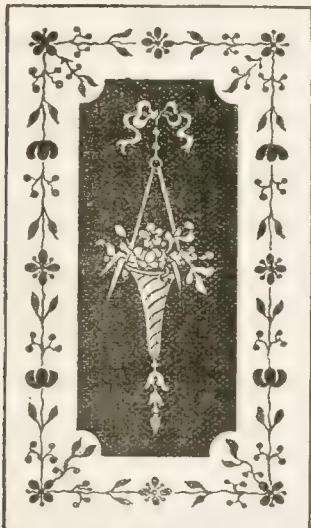
—o—

The Editor of "*Hobbies*" is always ready to receive Suggestions for Articles for insertion in the paper. Any manuscript sent for his consideration must however be accompanied by a fully addressed and stamped envelope. Unsuitable contributions will be returned without avoidable delay, but it must be distinctly understood that the Editor will not hold himself responsible for the loss of any manuscript.

Our Weekly Presentation Design.

No. 17. PANEL WITH OVERLAY ORNAMENTS.

JN Chapter X. of our series of articles on *Fretworking* was given a miniature sketch of a Door Panel with Overlay ornaments, which, at the request of some readers, we have now had reproduced full size.



In the meantime we are only able to give the Design of the Panel, but in a few weeks we hope to describe the construction of a small Cabinet which could be used in connection with it. No doubt many Fretworkers are independent of us in this respect, and will be able to find some suitable use for the Pattern without our aid.

To make the full-sized Diagram clearer the panels have been left in outline, while the Overlay border and centre ornament have alone been tinted. The large panel should be $\frac{3}{16}$ or $\frac{1}{2}$ inch in thickness, or it may be more if desired. It is perfectly plain, but if the worker cared he might cut from the centre a piece of similar shape to the smaller panel, but about half an inch narrower all round. This plan has two trifling advantages,—a small piece of wood is saved, and when the Overlaid panel is glued in position the reverse side of the door has a better appearance, as it shews a sunk panel. The smaller panel should not be more than $\frac{1}{8}$ inch thick. It is also plain, but the corners must be rounded out as shewn, and a good effect may be had by bevelling the edges. This bevelling may be done with an ordinary shooting board and plane, but those who use the Treadle Fretsaw will find it less troublesome to tilt the table slightly to the side and thus cut the outline on an angle. The best glue must be used for fixing this small panel to the large one, and great care must be taken to place it exactly in the centre. It will be found advisable to drive in a few small screw nails from behind, as amateurs have seldom the means for applying the necessary pressure when fixing Overlays with glue.

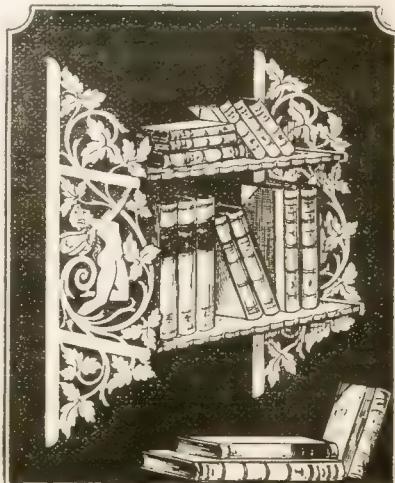
The ornamental Overlays should be cut from $\frac{1}{16}$ inch wood. If thicker is used they will look very heavy, and the beauty of the Pattern will be destroyed. The border need not be cut all in one piece. The two sides should be cut together, as they are similar, and the top and bottom likewise. The centre ornament must be cut with another slip of wood fixed to the back, as $\frac{1}{16}$ inch if used alone will get torn to pieces by the saw blade. The Overlay should be glued on in the usual way, and for instructions in this we must refer the reader to *Fretworking*, Chapter IX.

Many experienced amateurs may prefer to Inlay the ornament, but it should be pointed out that the Design has been drawn expressly for Overlay work, and the Inlayer will experience difficulties which we certainly will not give him when we publish an Inlay Pattern. The border, it is true, is equally suitable for both methods. If Inlaid, it could be done with a single insertion of the saw blade; begin at a corner, go right round the outside, then slip the saw through a narrow, unimportant bit of stem, and thread round the inside. But with the centre ornament there are intersections and Inlays within Inlays, so that the amateur, however advanced, would find great difficulty in producing a neat piece of work.

For the arrangement of wood endless schemes might be given, but we will content ourselves with one or two:—1, Pure White throughout. 2, Walnut ground, Satinwood border, Orange Overlay panel, and White centre ornament. 3, Mahogany, Walnut, or Rosewood for both panels, Satinwood border, and White centre ornament. 4, White ground, White border, Pencil Cedar Overlay panel, and White centre ornament. 5, Ditto, but with Stained Blackwood Overlay panel. 6, Orange or Satinwood for both panels, and White for the Overlay ornaments. These are but a few suggestions, and many other effects would look equally well.

If the panels are to be polished this should be done before the Overlay is applied.

No. 18. BOOKSHELVES.



The above sketch is a miniature of the full-sized Pattern for Fretwork Bookshelves which will be given away with each copy of next week's issue of *Hobbies*.



* * * All communications to be answered in these columns should be marked "Correspondence," and must be addressed to the Editor of *Hobbies*, Bouvierie House, Salisbury Square, London, E.C. In no case can we reply to enquiries by post.

ELECTRICITY.

N. P. WALKER.—Any bookseller will procure for you "Electric Bells and All About Them," price 3s., published by Whittaker.

R. PEARSON.—Probably the zincs and carbons are not large enough; make them as large as you can. Do not forget to have four cells. Connect with No. 16 copper wire.

SILHOUETTE.—You cannot buy the Electric Button Hole Lamp ready-made, as it was designed specially for *Hobbies*; but we could obtain the various parts for you.

H. T.—You could procure the asbestos from J. W. Gordon, 98, Charing Cross Road, by mentioning this No. B 430. The stuff is about 10s. per lb., but you could get more than enough for sixpence.

W. LISSIMAN.—You can get the specially prepared gutta-percha for making accumulators from the address given to H. T. The same firm will supply all parts for making the accumulator, which is patented.

T. E. BALCHIN.—The sample you sent us is known as "tinsel," and you could probably procure a small quantity from a theatrical costumier. Clarkson, of Wellington Street, London, might supply you.

FRETTWORK, CARVING, &c.

J. JACK.—The piece of wood you refer to, and which is given with Fretwork outfits, is a *Cutting Board*. See answer to "Perplex'd" in *Hobbies* No. 5.

R. R. H.—(1) Your suggestion, though good, is hardly practicable. (2) The "Star" saw is better for the Treadle Machine than for the Hand Frame; we prefer the "Record" for the latter.

B. L.—The "Cricket" is a Treadle Fretsaw, but we do not feel inclined to recommend it. For two or three shillings more you could get a thoroughly serviceable Machine, and if you send your name and address, we could advise you where to apply.

C. C. S.—On the St. Paul's Design only half of Fig. 1 is shewn. You can either cut two at one time, or trace the diagram on to two pieces of wood by using black carbon paper. There are five steps; trace the outline of each to separate pieces of wood, and then cut.

PIGEONS.

FOGGED.—Sorry we cannot supply you with birds, but have sent you names of successful and reliable breeders of varieties named. The prices, of course, vary very much according to the prizes won, &c., but 20/- or 50/- per pair is sufficient to purchase a decent pair to breed from first. Other articles on this hobby will follow. As to assistance in hatching—when the time is fully up and hatching not begun, if the young one can be heard inside, it is wise to crack the shell gently with a pin as near the point of the beak as can be guessed, and if still no progress, extend the crack around the egg. If gentle action is used, many a young one will thus be saved. The marking rings are used to denote year of hatching, and are issued with sanction of a Pigeon Marking Conference, and are only sold by Allsopp, Birmingham.

PHOTOGRAPHY AND LANTERNS.

JOHN W. WESTON.—We could lend you a few slides, but that is all the help it is in our power, at present, to render.

JOS. FIRTH.—The question of "Stereoscopic Photography" will not be overlooked. We are greatly obliged by the interesting details of your picture "The Huckster."

WM. GOODSLIP.—"The Photomnibus" pin-hole camera, a correspondent writes us, may be obtained of Messrs. Fallowfield, 146, Charing Cross Road, London, W.C. Price 2s. 6d. complete.

J. S. WOOLLEY.—There is no reason why the film should "crinkle up in the middle"—possibly you have been drying your negative by artificial heat; this might account for it. The plates you use are as perfect as any in the market. Alum is used after the fixing bath in order to clear the negative of any traces of hypo. If the negatives are well washed in several changes of water, or, better, in running water, "clearing" can be dispensed with. The lens you have is quite quick enough for ordinary shutter work, and in a good light will, on a quick plate, working at f/8, give a good image with an exposure of say $\frac{1}{2}$ a second.

STAMPS.

W. L. J. (London).—Most certainly.

ALICE B.—Worth 2d., if a good specimen.

F. P. B. (Manchester).—Worth one penny at the outside.

J. M. (Glasgow).—The first plates of the 2d. blue English bore no plate number.

E. W. J. (Tipton).—Plate 213 is not rare, nor is there anything abnormal about the stamp you describe. On the contrary it is very, very common.

A. E. F. (Brighton).—Fairly respectable. (2) The common continental stamps you describe can be purchased from many dealers at from 6d. to 1s. per thousand.

J. A. (Middlesboro').—The trouble you have taken in photographing the stamp meets with an ill reward. The stamp hails from Austria, but is not a postage stamp at all, but merely an Inland Revenue stamp. It is quite worthless from a collector's point of view.

K. D. (Glasgow).—Your stamp is certainly of "the right design" for the 6d. Newfoundland first issue. The only point in doubt is the colour. If, as you say, it is vermilion, it is not the rarest of the sixpennies. Still your stamp is probably worth from 25s. to 35s., according to condition.

MISCELLANEOUS.

J. H. JEMMY.—We are giving away two Stencil Patterns with *Hobbies* No. 19.

W. J. GREENE.—We have a number of short "How to Make" articles ready for publication, and these will appear as soon as we can find suitable space.

H. G. E.—We think you are too old to perform the Gymnastic Test you speak of, and we certainly do not recommend you to try it, or you may possibly end by breaking your back.

M. & D.—You will buy a knapsack much cheaper than you can make one, and we would recommend you to apply to any large dealer in leather and waterproof goods. We shall give suggestions on walking tours later on, but meanwhile if there is any particular information which you desire we shall be pleased to give it.



HOW TO MAKE AN ELECTRIC BELL SET.



E propose in the following articles to show the reader how he can, at a small cost and with very little skill, make a complete Electric Bell Set, comprising bell, battery, and push; and at the same time to give him or

her, as the case may be, a general idea as to fitting it up in the house. Although only a very simple Bell will be described, the reader will receive a good general knowledge of the principle on which all Bells of this class work.

We will proceed with the construction of the Bell first. The reader will find it best to purchase several parts, viz., the gong, silk covered wire, two binding screws, and a few odds and ends which he cannot make himself. A couple of very small pieces of platinum will be required, but these can be cut from an old incandescent lamp. To find the platinum, cut away the plaster of Paris at the top of the bulb, and a couple of silver-like wires will be seen; this is the platinum required, and may be sufficient for more than one Bell. Should the old lamp not be obtainable, a piece of platinum may be procured at the electrical stores for a few pence. The tools required are very few and simple, and may be found in nearly every amateurs' tool chest. The first thing to be made is

the base of the Bell, to which all parts are fixed. To make this base procure a piece of $\frac{1}{2}$ inch mahogany 6 inches long by 4 inches wide; this will allow plenty of room for fixing the cover. The corners can now be cut out with a fretsaw, as shown in Fig. 1, A. The base can then be varnished or polished.

We can now proceed to make the electromagnet. Obtain a piece of very soft iron about

$\frac{1}{8}$ inch thick and 3 inches long; bend this round into the form of a horseshoe so that the legs are $1\frac{1}{2}$ inches long in the straight, and $\frac{5}{8}$ inch apart inside. This iron core should now be annealed by placing it in the kitchen fire overnight; let it remain there all night so that it may cool as gradually as possible; this will make it as soft as it is possible for it to be. In the morning take it out of the ashes and give it a rub all over with a file to take off the scale; then file up the ends perfectly flat and square with each other, and lay it aside while we proceed to make and wind the bobbins.

To make the bobbins first procure a piece of wood the same size as the legs of the magnet core and about 4 inches long. Take two pieces of brown paper 4 inches long and $1\frac{1}{2}$ inches wide, roll them round the wood and glue them so as to form two tubes $1\frac{1}{2}$ inches long; slip them off the wood and let them dry. Cut four circles of $\frac{1}{16}$ inch fretwood, a little less than 1 inch outside diameter, and bore a hole

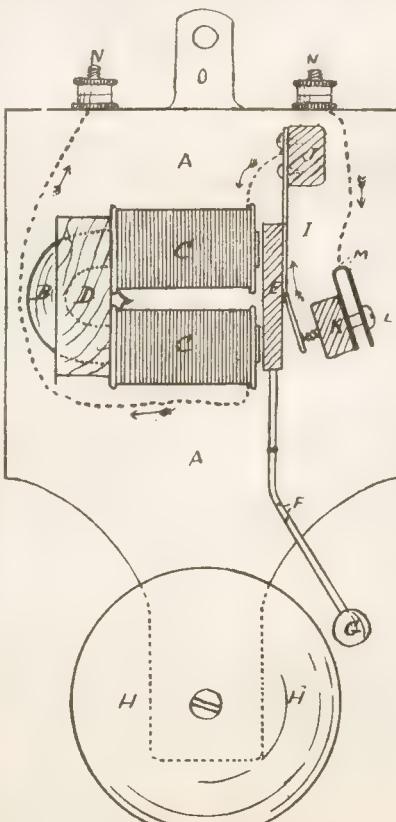


FIG. 1.

in the centre just large enough to fit the ends of the paper tubes; glue these circles on the ends of the tubes and lay aside to dry. Fig. 2 shows a completed bobbin. When the glue is dry they should have a couple of coats of stiff hard varnish and again allowed to dry.

Now take the stick on which the bobbins were formed and rig it up as a windlass with a handle. We can then wind the bobbins. For this a 4 oz. reel of No. 22 silk covered copper wire will be required; this will fill both bobbins and leave some for odd jobs. In winding the coils of an electro-magnet requiring a north and south pole, such as a bell magnet, the wire

must be coiled in the reverse direction on each leg; that is to say, a right hand twist on one and a left hand twist on the other. But if the magnet was straightened out instead of being bent, it would be seen that the winding was all one way. This may seem a somewhat contrary statement, but it is nevertheless true. The diagram Fig. 3 will show this better than any explanation.

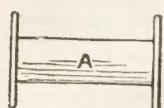


FIG. 2.

Having, we hope, made this most important matter clear, we will proceed to wind the wire on the bobbins. Take the stick (now made into a windlass) and slip one of the bobbins on tight; then wind it as full and as even as possible with the wire, leaving about 6 inches of unwound wire at either end. The winding will be all the better if a coat of varnish is given to each layer; this will improve the insulation and keep the wire tight. The other bobbin should be wound exactly in the same manner. Now slip the bobbins on the magnet legs so that the beginnings of the coils are the same way. This is shown in Figs. 1 and 3. The starting ends must be soldered close together, and the other ends of the wire wound round a pencil to form a helix. The complete electro-magnet should then have a nice coat of Brunswick black; the bright ends should not be touched.

Now make a saddle of wood, of the shape shown in Fig. 4; glue the bottom piece to the base about the position shown in Fig. 1, D; then place the magnet on, put the top piece in position, and put a long screw through the lot.

The vibrating part of the Bell must next be made. For the hammer we require a brass ball about $\frac{3}{8}$ inch in diameter, with a piece of stout iron wire screwed into it. The other end of the wire should be screwed into a piece of soft iron $1\frac{1}{2}$ inch long, $\frac{3}{8}$ inch wide, and $\frac{1}{16}$ inch thick. This iron armature, as it is technically termed,

should be properly annealed in the same manner as the magnet core. A piece of old clock spring must be procured and bent to the shape shown in Fig. 1, I, and at the end of the longer portion two small screws must be drilled.

Take one of the pieces of platinum, beat it out flat with a hammer, and solder it about $\frac{1}{4}$ inch from the end of the shorter portion. This spring should be soldered or riveted to the armature. The various parts are shewn in Fig. 5. A small block of wood should next be prepared, and the armature screwed to it. This block should be glued and screwed to the base, so that the armature faces square and true before the faces of the magnet poles, and at least $\frac{1}{8}$ inch from them. A $2\frac{1}{2}$ inch gong is required; fix this on the base by means of a long wood screw. The gong must be kept at the proper distance from the base by a length of tube placed between. The hammer head must strike the gong near the edge as shown in Fig. 1, G, H.

We now require a brass wood screw about 1 inch long; file the point off this, and drill a small hole down the centre. Take the other piece of platinum and sweat it in the hole in the screw by means of a little solder. The end of the platinum wire must be hammered flat so that $\frac{1}{16}$ inch projects from the end of the screw. Now get a small piece of copper 1 inch long and $\frac{1}{8}$ inch wide, bend this double and solder a $\frac{1}{6}$ inch length of the covered wire to the bend; then drill a hole right through the two ends just large enough to admit the contact screw just made. Take the contact screw and screw it through a small block of wood similar to that used for the armature spring, so that the doubled piece of copper is between the wood and the head of the screw. Then glue and screw this block on the base so that the platinum tip just touches the centre of the platinum speck on the spring.

We can now proceed to connect up. There are three free ends of wire, viz., two from the electro-magnet and one from the contact screw. Take one from the magnet and connect it to the left hand terminal; then take the other and solder it to the top of the armature spring. Then take the wire from the contact screw and connect it to the right hand terminal.

The Bell is now complete and is ready for adjustment.

(To be continued.)



FIG. 4.

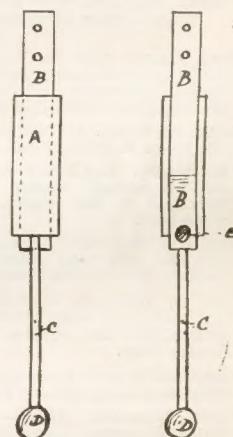


FIG. 5.

* The charges for advertisements (prepaid) in this page will be sixpence for every twelve words or less, name and address inclusive, and one halfpenny for every additional word. Single letters, initials and figures are each counted as a word; but undivided numbers (as 152), and prices (as 10s. 6d.) count as only one word each. In every case the name and address of the advertiser must be given for publication, and we cannot at present undertake to supply a private name or number and receive replies to advertisements at our office. All advertisements must be accompanied by remittances, otherwise they cannot be inserted. Whenever possible, payment should be made in Postal Orders, and not stamps. Letters should be marked "Advt." and must be addressed to the Publisher, *Hobbies*, Bouvierie House, Salsbury Square, London, E.C.

Note.—Trade Advertisements can only be inserted in this page at the rate of one shilling per line.

Acme Electric Bell Set, comprising 2½ in. Electric Bell, Quartz Leclanche Battery, Push, 50 feet Wire, Staples, Instructions, 4/6; better value impossible.—Electric, Lord Street, Openshaw, Manchester. E. 3.

Coins.—Complete set Jubilee coins. Want cash offers.—C. 75, Bridge Road, Hammersmith.

"Electricity," One Penny weekly; practical, chatty, and interesting. Should be read by everyone interested in the science. Order it from your newsagent. D. 3.

Electrical Hobbies.—Write for New Enlarged List; will just suit you; prices low; best quality.—Electric, Lord Street, Openshaw, Manchester. E. 3.

Free.—20 different United States, free to all applicants for sheets enclosing postage, 100 different stamps, 5d.; 100 superior, 1/-—Rhodes, Rammas House, Otley. B. 2.

Fretwoods, ½ inch American Canary, 3d. per foot; Teak, Mahogany, 4d.—T. Carter, Lichfield. H. 6.

Great Electrical Sale.—Exceptional Bargains. Write at once. Lists, 1d. stamp.—T. Greaves, 19, Kerbey Street, Poplar, E. B. 2.

High Class Tools.—For New Illustrated Price List, send 3d. to Osborn Brothers, Tool Merchants, 38, Fratton Street, Portsmouth. M. 12.

How to learn and start a light artistic business that will produce a living without previous knowledge on the small capital of one pound. Complete instructions, post free, 12 stamps.—James, 11, Stanbury Road, Peckham, S.E. C. 3.

How to make an Electric Night Light that will work well for years without attention, post free, 6 stamps; also how to attach an electric alarm to clock, 6 stamps.—James, 11, Stanbury Road, Peckham, S.E. C. 2.

Large Modern Dulcimer, value 35s. What offers in exchange? Lantern Slides preferred.—John Brooks, Birdcage, Beacon Road, Halifax.

New Book of Instructions in gilding, graining, mixing paint, French polishing, picture-frame making, mount cutting, etc., 1,000 valuable recipes, free, 1/2.—McQuhae, Cockermouth, and all Booksellers. L. 6

Roses.—Beautiful crimson moss roses, on own roots, 3/5 dozen, 4d. each; carriage 3d.—Fulcher, Tattingstone, Ipswich.

Stamps.—Edward W. Drury, Westholme, Hessle, East Yorks, wishes to buy collection containing old issues, good price paid; also duplicates for sale. Book containing large selection, priced cheaply, can be sent on approval to responsible applicants. C. 3.

Stamps.—Oriental, very rare Greece, 1 drachma; scarce Russian Levant, 10 kopeos; six Turkish, ten Roumania, four obsolete Bulgaria, Montenegro; 30 excellent genuine varieties Oriental only; 1s. 1d. Smith, Arthur Road, Kingston, Surrey. C. 4.

100 different stamps, from collection, good, rare, 1/6; 60 infinitely superior specimens, 2/-; 80 good different, 1/-—Philatelist, 37, King's Road, St. Leonard's, Sussex.

* As we are obliged to go to press about ten days before the nominal date of publication, Advertisements must be received at our Office on Wednesday morning to ensure insertion in the following week's issue.

£20 TOBACCONISTS' COMMENCING.
See Illd. Guide & Catalogue. (259 pgs.) 3d. "How to open a Cigar Store, £20 to £2,000."—Tobacconists' Outfitting Co. (Reg'd.), 186, Euston Rd., London. N.B.—Shopfitters and showcase makers for all trades. (Over 50 years' reputation.) Mgr., H. Myers.

"HOBBIES" COUPONS ACCEPTED.

JOHN GREEN, F.R.H.S.,
SUPPLIES EVERYTHING FOR
THE GARDEN.

If you want anything, however small, state requirements or send for Catalogues.

All who make Gardening a Hobby should see my Great Catalogue, which is up to date and full of all the best novelties in Seeds and Plants. Price 1/- (which may be deducted from first order over 10/-).

JOHN GREEN, F.R.H.S.,
NORFOLK NURSERIES, DEREHAM.

FRETWORK MACHINES, DESIGNS,
LISTS FREE. TOOLS, WOOD, &c.

(MENTION PAPER.)

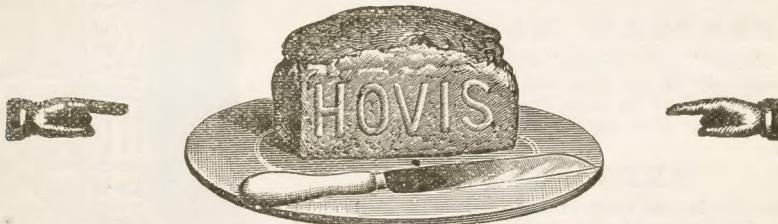
T. D. BRADWELL & CO., MACCLESFIELD.

Highest Award at Food and Cookery Exhibition,
LONDON, MAY, 1895.



PROMOTE DIGESTION.

SUPPLIED TO THE QUEEN AND ROYAL FAMILY.



MISS FRANCES WILLARD says:—

"*Hovis* is a grand institution, I have almost lived on it since I found it out."

6d. & 1/- SAMPLE OF BREAD & BISCUITS ON RECEIPT OF STAMPS.

 "Imitation is the Sincerest Form of Flattery." 

The Public are cautioned against accepting from Bakers spurious imitations of "HOVIS," which, having met with such unprecedented success, is being copied in many instances as closely as can be done without risk.

If any difficulty be experienced in obtaining "HOVIS," or if what is supplied as "HOVIS" is not satisfactory, please write, sending sample (the cost of which will be defrayed) to

S. FITTON & SON,

 **Millers, Macclesfield.**

BEWARE! BAKERS RECOMMENDING ANY OTHER BREAD IN THE PLACE OF "HOVIS" DO SO FOR THEIR OWN PROFIT. BEWARE!

SEVEN INTERNATIONAL MEDALS SECURED.

A few reasons are given below why every Fretworker should obtain our New Illustrated Catalogue of Tools and Designs for

FRETWORK AND CARVING.

NEW DESIGNS.

No other firm is able to offer so large a variety of really artistic and original Designs for Fretwork. Our New Catalogue contains a number of perfectly new Designs, which we confidently assert to be the finest ever produced.

ENGLISH MADE MACHINES & FRAMES.

Our Catalogue contains full particulars of a number of thoroughly serviceable Treadle Machines for Fretwork, all of which are made in our own workshops, and not imported from Germany and America. We are the *only makers of Fret Frames in Great Britain*; all Frames sold by other firms are imported from Germany or America. We sell all Steel Fret Frames of our own make at prices ranging from 10d. to 5/-

FRETSAW BLADES.

Our "Record" and "Swift" Fretsaw Blades are manufactured expressly for us from the best British Steel Wire. The "Record" are best for Hand Frames, and the "Swift" for Treadle Machines. Full particulars will be found in our Catalogue.

FRETWOOD.

We have the largest stock of fancy woods for Fretwork in the United Kingdom. All the wood is cut in our own mills, and the boards are given a smooth and glossy surface by expensive machinery. We have been awarded a Gold Medal for the excellence of our 3-ply Fretwood. Our Catalogue contains full descriptions and prices of all our woods.

WHAT OUR CATALOGUE IS LIKE.

Our New Catalogue is a fully illustrated book of 64 pages, containing particulars and prices of all materials required for Fretwork, Wood Carving, Bent Iron Work, &c. It also contains instructions for Fretwork, Carving, Bent Iron Work, and Polishing and Varnishing. The price is sixpence, and with every copy we

GIVE AWAY 

a Design for a Fretwork Model of the Clock Tower of the Houses of Parliament, BIG BEN, the published price of which is One Shilling.

It will pay every Fretworker to send at once Sixpence for the Catalogue and Presentation Design.

OUR PRIZE MEDALS.

We have obtained no fewer than *Seven Prize Medals* at various Great International Exhibitions. No other firm in the United Kingdom has ever obtained an award for Fretwork Designs or Materials at any International Exhibition.

J. H. SKINNER & Co., H Dept., DEREHAM, Norfolk.